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Subject: notes on our conversation re: Sybase
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The WELL could greatly improve its flexibility in presenting conferencing information if, instead of using PicoSpan's method of storing each topic's data in a single sequential UNIX file, the data were stored in tables in a relational database. Moreover, PicoSpan's present user interface can be preserved, so customers will be spared any disruption. Such a change would,however, enormously facilitate development of alternative user interfaces.

Moreover, such a change would not be especially difficult, since we have access to the source code for PicoSpan; the present user interface code can be retained, replacing the data storage and retrieval functions with equivalent SQL queries called inside C functions.

Sybase's SQL Server is a relational database management system that is optimized for online transaction processing. It is available on a number of platforms, including 386 machines, Sun SPARCstations, and the NeXT computer. SQL Server on the NeXT is among Sybase's least expensive offerings, and with its built-in Ethernet, a NeXT or a Sun 4 can transparently network with the existing Sequent hardware, which would continue to handle the input/output and disk access functions.

SQL Server is built for continuous access; backups can be made on a live database without bringing the server down. Either the NeXT or the Sun can be equipped with an optical disk drive that stores 256 megabytes of data. SQL Server on the NeXT supports backup and recovery to/from multiple optical disks.

SQL Server is a robust, mature, reliable technology presently being used for mission-critical applications by companies such as British Petroleum, Chevron Canada, Salomon Brothers, Goldman-Sachs, TRW, and the American and New York stock exchanges. It uses ANSI standard SQL, a powerful database query language. Application programs such as PicoSpan communicate with SQL Server through Sybase's Open Client DB-Library, a collection of C routines optimized for sending queries to the server and processing the results.

SQL Server has excellent security; databases and tables can have read/write permission granted to individual users, groups of users, or everyone--so PicoSpan's private conferences will be able to continue just as they do today.

Upgrading to SQL Server would also improve flexibility in tracking system usage. As a user enters a conference, a trigger can be set to enter the date and time into a database table; SQL is a language designed to facilitate processing and presenting this information in useful ways. This would let management collect more interesting statistics about conference use, and provide a more accurate picture of who is using the system when, and how. Lotus Development is marketing their Data Lens Driver for Sybase, which serves as a direct interface between SQL Server's database tables and a 1-2-3 spreadsheet; so ad hoc management reports can be prepared easily using Lotus. Management reports can also be preprogrammed and scheduled on a daily, weekly, monthly, quarterly, or yearly basis.

The upgrade would also put the WELL in a position to grow considerably. One of SQL Server's strengths is that performance for 200 simultaneous users is virtually as good as for 50. Another virtue is its upgrade path: if the WELL outgrows the present configuration, the same datafiles can be used by SQL Server running on a more powerful machine.

The greatest benefit would derive from the additional features that a relational database makes easy. For example, many users have requested a "bozo filter," a convenient method of ignoring postings from an individual or a set of individuals. By adding another command to those recognized by PicoSpan at the OK prompt, we can let the user specify users to be ignored, or, equally easily, just the set of users' comments to be retrieved.

As the WELL grows, it adds conversations that contain information that is useful over a long period of time. Reading the conversation as a linear series of comments will probably remain the default, but when the user wants to remember exactly what experts said about installing private branch exchanges in business, the filter can be invoked to select the comments by

John Nagle or Erik Fair in the Telecom conference in which "private branch exchange" or "PBX" occur along with "business."

Alternatively, it could retrieve the comments about fiber optic in any conference by everyone except Brian Hutchings, in the date range between June 15 and July 30, 1990. These powerful search facilities will add to the ways the WELL is used, resulting in increased traffic.

Other possible commands could allow the user to have a list of preferred authorities for a topic, and to retrieve all the comments of a particular list of contributors.

Another feature that would be easy to add would permit a user entering a comment to edit that comment if another comment slipped in. In PicoSpan, there is only a notification that another comment has been made.

The upgrade would also let users have access to SQL Server for their own use; in the early days of the WELL, this was frequently mentioned as a desirable feature. I suspect it still is. Besides increased connect time, users would be charged for their data storage.

I have spent the last year programming in SQL, and have already moved topics from PicoSpan format into a format suitable for installing in SQL Server. I am quite familiar with PicoSpan's user interface and file structure.

I envision a procedure whereby the WELL buys a NextStation development machine that I can use at home (Sybase has an arrangement with NeXT to purchase these at an attractive discount, roughly $7,000 for a complete development environment including a Telebit Trailblazer modem) for one year, or as long as I continue to provide useful enhancements to SQL Server's conferencing capability. The machine would remain an asset of the WELL. I would undertake to provide a detailed development plan for a thousand dollars within a month of getting the NeXT machine--that way I could prototype the system and be sure the development plan would be realistic. I estimate that I could have an alpha-testable version of the initial system--which does nothing more than present-day

PicoSpan--up and running within a month after approval of the development plan, with a final version ready a month after that, at a cost of an additional $5,000.

So, with an elapsed time of less than six months and an investment of less than $40,000, the WELL could have

- a fully loaded NeXT 68040 cube with sufficient memory to handle 200 users and with an optical disk for backup;
- a Sybase SQL Server license;
- a smaller NeXTstation for incremental development;
- another Telebit Trailblazer;
- a more powerful conferencing system;
- improved auditing and usage statistics;
- an established growth path in case the need arises for more than 256 simultaneous users.

If you have any questions, let me know. I've talked to the fellow who handles our NeXT marketing, and he'll be sending a literature packet soon; if he doesn't, I will.

Later...